

In the Claims

Please amend claims 1-23, 28-35, 42-61, and 69-72

1. (Amended) A process for amplifying a reaction between a ligand and a receptor of a ligand-receptor pair comprising:
- bringing said ligand and said receptor of said ligand-receptor pair into contact in conditions suitable to allow their reaction; and
- applying at least one electromagnetic signal characteristic of the biological activity of at least one of said ligand or said receptor to at least one of said ligand or receptor, wherein said electromagnetic signal can be applied prior to, simultaneous with, or subsequent to said ligand and said receptor being brought into contact,
- wherein said process amplifies the reaction at least in part by increasing the binding affinity properties of at least one of said two elements.
2. (Amended) The amplification process according to claim 1, wherein the reaction between said ligand and said receptor is achieved by bringing two reagents, containing respectively said ligand and said receptor, into contact, and applying said at least one electromagnetic signal to at least one of said reagents.
3. (Amended) The amplification process according to claim 2, wherein applying said at least one electromagnetic signal to said at least one reagent is achieved by exposing a solution or a suspension comprising said at least one reagent to said at least one electromagnetic signal.
4. (Amended) The amplification process according to claim 2, wherein said application of said at least one electromagnetic signal, to said at least one reagent is achieved by diluting a solution or a suspension comprising said at least one reagent in a solvent already exposed to said at least one electromagnetic signal.
5. (Amended) The amplification process according to claim 2, wherein said application of said at least one electromagnetic signal, to said at least one reagent is achieved by

dissolving or putting into suspension said at least one reagent in a solvent already exposed to said at least one electromagnetic signal.

6. (Twice Amended) The amplification process according to claim 4, wherein said solvent already exposed to said at least one electromagnetic signal comprises water physiological solute, or combinations thereof.

7. (Twice Amended) The amplification process according to claim 2, wherein said at least one electromagnetic signal comprises the electromagnetic signal picked up from an analytical sample suspected to contain said at least one ligand or receptor.

8. (Twice Amended) The amplification process according to claim 2, wherein said at least one electromagnetic signal comprises the electromagnetic signal radiated by an electromagnetic radiation source.

9. (Amended) The amplification process according to claim 1, wherein said reaction between said ligand and said receptor is achieved by bringing an analytical sample suspected to contain said at least one ligand or receptor into contact with a reagent containing either said receptor or said ligand, and applying said at least one electromagnetic signal to said sample and said reagent.

10. (Amended) The amplification process according to claim 9, wherein said application of said at least one electromagnetic signal to said analytical sample is achieved by exposing said sample to said at least one electromagnetic signal or by diluting said sample in a solvent already exposed to said at least one electromagnetic signal.

11. (Twice Amended) The amplification process according to claim 9, wherein said application of said at least one electromagnetic signal to said reagent is achieved by exposing a solution or a suspension containing said reagent to said at least one electromagnetic signal, by diluting a solution or suspension in a solvent already exposed to said at least one

electromagnetic signal, or by dissolving or putting into suspension said reagent in a solvent already exposed to said at least one electromagnetic signal.

12. (Amended) The amplification process according to claim 9, wherein said at least one electromagnetic signal is applied to said analytical sample and said reagent by exposing a solution or a suspension containing said sample and said reagent to said at least one electromagnetic signal or by diluting said solution or suspension in a solvent already exposed to said at least one electromagnetic signal.

13. (Twice Amended) The amplification process according to claim 9, wherein said at least one electromagnetic signal is applied to said analytical sample, and said reagent at the same time.

14. (Twice Amended) The amplification process according to claim 10, wherein said solvent having been previously exposed to said at least one electromagnetic signal comprises water, physiological solute, or a combination thereof.

15. (Twice Amended) The amplification process according to claim 1, further comprising acquiring said at least one electromagnetic signal.

16. (Amended) The amplification process according to claim 15, wherein said acquiring comprises recording and retrieving data, wherein said data represents said at least one electromagnetic signal.

17. (Twice Amended) The amplification process according to claim 1, further comprising detecting, measuring, or a combination thereof, the complexes resulting from the reaction between said ligand and said receptor.

18. (Twice Amended) The amplification process according to claim 9, wherein said ligand is an antigen or a hapten and said receptor is an antibody or a membranous receptor directed specifically against said ligand.

19. (Amended) The amplification process according to claim 18, wherein said reaction between said ligand and said receptor is revealed by agglutination.

20. (Twice Amended) A process for detecting the presence of a substance corresponding to said ligand or said receptor in an analytical sample, comprising a process according to claim 1.

21. (Amended) A detection process according to claim 20 comprising:  
bringing at least two reagents, containing respectively, said ligand and said receptor into contact, in conditions suitable to allow their reaction;  
applying at least one electromagnetic signal characteristic of the biological activity of the analytical sample to at least one of said ligand or receptor, wherein said at least one electromagnetic signal can be applied prior to, simultaneous with, or subsequent to said ligand and said receptor being brought into contact; and  
detecting, measuring, or a combination thereof at least one ligand-receptor complex formed during the reaction between said ligand and said receptor.

22. (Amended) A detection process according to claim 21, wherein the concentrations of said ligand and said receptor are chosen so as to be sufficient to obtain ligand-receptor complexes detectable in the absence of the application of said at least one electromagnetic signal, but lower than the concentrations likely to lead to a saturation of the reaction between said ligand and said receptor.

23. (Amended) A detection process according to claim 20, comprising:  
bringing said analytical sample into contact with a reagent comprising either the receptor, if the substance sought in the sample is the ligand, or the ligand, if the substance sought in the sample is the receptor, in conditions suitable to allow their reaction;  
applying said at least one electromagnetic signal to said sample, said reagent, or both said sample and said reagent; and

21  
Concl detecting, measuring, or a combination thereof any ligand-receptor complexes that may have been formed.

28. (Twice Amended) The process of claim 20, wherein said process is used in biological diagnostics in human or veterinary medicine.

29. (Twice Amended) The process of claim 20, wherein said process is used for bacteriological control in the pharmaceutical industry, the cosmetic industry, or the food production industry.

30. (Twice Amended) A process for detecting the presence of an electromagnetic test signal characteristic of the biological activity of a substance corresponding to a ligand or a receptor of a ligand-receptor pair, in an electromagnetic test signal, comprising the implementation of an amplification process according to claim 1.

31. (Amended) A detection process according to claim 30, wherein said electromagnetic signal is the electromagnetic signal radiated by an electromagnetic radiation source.

32. (Amended) A process for producing or acquiring, from a substance, signals that are characteristic of the biological or chemical activity or the biological or chemical behavior of said substance or an active element contained in said substance comprising:

- placing said substance in a zone subjected to an excitation field of an electrical, magnetic or electromagnetic type, wherein said excitation field is produced by an excitation signal having a frequency between about 20 Hz and about 20 000 Hz; and
- converting the fields resulting from the interaction of said excitation field and said substance into signals by means of a first transducer or acquisition sensor receiving said resulting fields, wherein said resulting fields are the signals that are produced or acquired from said substance,
- wherein said signals are characteristic of the biological or chemical activity or behavior of said substance or said active element contained in said substance.

33. (Amended) A process according to claim 32, wherein said excitation signal has a uniform spectral power, of the white noise type.

34. (Amended) A process according to claim 32, wherein said zone subjected to said excitation field is isolated from fields coming from the environment.

35. (Amended) A process according to claim 32, further comprising:  
applying said signals coming from said first transducer, by means of a second transducer, to a biological receptor system,

wherein said signal is applied in such a way that the biological or chemical activity or behavior of the biological receptor system will be modified in accordance with the nature of the biological or chemical activity or behavior of said substance.

42. (Amended) An process for amplifying a reaction between a ligand and a receptor of a ligand-receptor pair, comprising:

bringing said ligand and said receptor of said ligand-receptor pair into contact in conditions suitable to allow their reaction; and

applying an electromagnetic signal, obtained from an electrical signal produced by a sensor placed in front of at least one of said ligand or said receptor of the ligand-receptor pair.

43. (Amended) The process according to claim 42, wherein said reaction between said ligand and said receptor is obtained by bringing at least two reagents, containing respectively, said ligand and said receptor, into contact and applying an electromagnetic test signal suspected to include the electromagnetic signal characteristic of the biological activity of at least one of said ligand or receptor of said ligand-receptor pair to at least one of said two reagents.

44. (Amended) The process according to claim 43, wherein said application of said electromagnetic test signal is accomplished by exposure of a solution or a suspension containing said at least one reagent to said electromagnetic test signal.

45. (Amended) The process according to claim 43, wherein said application of said electromagnetic test signal is accomplished by dilution of a solution or a suspension comprising at least one of said reagents, in a solvent already exposed to said electromagnetic test signal.

46. (Amended) The process according to claim 43, wherein said application of said electromagnetic test signal is accomplished by dissolution or putting into suspension at least one of said reagents in a solvent already exposed to said electromagnetic signal.

47. (Amended) The process according to claim 45, wherein said solvent comprises water, physiological solute, or a combination thereof.

48. (Amended) The process according to claim 43, wherein said electromagnetic test signal is the electromagnetic signal obtained from an electrical signal produced by a sensor placed in front of an analysis sample suspected to contain said ligand or said receptor.

49. (Amended) The process according to claim 43, wherein said electromagnetic test signal is the electromagnetic signal radiated by an electromagnetic radiation source.

50. (Amended) The process according to claim 42, wherein an analysis sample suspected to contain said ligand or said receptor is brought into contact with a reagent containing either said receptor, or said ligand, and said electromagnetic signal characteristic of the biological activity of at least one of said ligand or receptor is applied to said sample reagent combination.

51. (Amended) The process according to claim 50, wherein said electromagnetic signal is applied by exposing said sample to said electromagnetic signal, or by dilution of said sample in a solvent already exposed to said electromagnetic signal.

52. (Amended) The process according to claim 50, wherein said electromagnetic signal is applied by exposing a solution or a suspension containing said reagent to said

electromagnetic signal, by dilution of said solution or suspension in a solvent already exposed to said electromagnetic signal or signals, or by dissolution or putting into suspension of said reagent in a solvent already exposed to said electromagnetic signal.

53. (Amended) The process according to claim 50, wherein said electromagnetic signal is applied by exposure of a solution or a suspension containing said sample and said reagent to said electromagnetic signal, or by dilution of said solution or suspension in a solvent already exposed to said electromagnetic signal.

54. (Amended) The process according to claim 50, wherein both said electromagnetic signal characteristic of the biological activity of the ligand and said electromagnetic signal characteristic of the biological activity of the receptor are applied thereto.

55. (Amended) The process according to claim 51, wherein said solvent is water, physiological solute, or combinations thereof.

56. (Amended) The process according to claim 42, further comprising acquiring said electromagnetic signal characteristic of the biological activity of said ligand or said receptor of said ligand-receptor pair.

57. (Amended) The process according to claim 56, wherein said acquiring said electromagnetic signal comprises recording and restitution of information, wherein said information is representative of said electromagnetic signal characteristic of the biological activity of one of said two elements of said ligand-receptor pair.

58. (Amended) The process according to claim 42, further comprising detection, measurement, or a combination thereof of the complexes resulting from the reaction between said ligand and said receptor.



59. (Amended) The process according to claim 42, wherein said ligand is an antigen or a hapten, and said receptor is an antibody or a membranous receptor targeted specifically against said ligand.

60. (Amended) The process according to claim 59, wherein said reaction between said ligand and said receptor is revealed by agglutination.

61. (Amended) A process for detecting the presence of a substance corresponding to at least one of said ligand or said receptor of a ligand-receptor pair in an analytical sample, comprising an amplification process according to claim 42.

69. (Amended) The process of claim 60, wherein said process is used for biological diagnostics in human or veterinary medicine.

70. (Amended) The process of claim 61, wherein said process is used in bacteriological control in the pharmaceutical industry, the cosmetics industry, or the food production industry.

71. (Amended) A process for detecting the presence of an electromagnetic signal characteristic of the biological activity of a substance corresponding to a ligand or a receptor of a ligand-receptor pair in an electromagnetic test signal comprising the implementation of an amplification process according to claim 42.

72. (Amended) A detection process according to claim 71, wherein said electromagnetic signal is the electromagnetic signal radiated by an electromagnetic radiation source.

Abstract

Remarks

Claims 1-72 remain pending in the application. Claims 1-23, 28-35, 42-61, and 69-72 have been amended as shown above. The claims were amended to more fully clarify the